WHAT IS CLAIMED IS:

1. A film deposition system comprising:

a vacuum chamber;

an evaporation source for forming a film on a work in said vacuum chamber; and

a cooling device for cooling the work, said cooling device being provided within said vacuum chamber,

wherein the work has an internal space communicating with the outside through an opening part, and said cooling device is insertable to and drawable from the internal space through the opening part of the work to cool the work from the inside.

2. The film deposition system according to claim 1, wherein said cooling device has a coolant vessel for passing a coolant in the inner part thereof.

3. The film deposition system according to claim 2, wherein the internal space of the work is formed in a cylindrical shape having a linear axis, and said coolant vessel is formed in a cylindrical shape insertable to the internal space.

4. The film deposition system according to claim 3, wherein the clearance between the inside surface of the work and the outside surface of said coolant vessel is set to 100 mm or less.

5. The film deposition system according to claim 3, further comprising a work holding device for attachably and detachably holding the work, said work holding device comprising a rotating table for rotating the work around a rotating shaft that is the axis of the internal space.

6. The film deposition system according to claim 5, wherein said work

holding device has a moving means for moving the work separately from said rotating table, and said cooling vessel is provided so as to move following the movement of the work by said moving means.

7. The film deposition system according to claim 6, wherein said moving means has a revolving table rotated around a revolving shaft, and said rotating table is provided on said revolving table.

8. The film deposition system according to claim 7, wherein said coolant vessel is provided on said revolving table.

9. The film deposition system according to claim 8, wherein said vacuum chamber has a bottom part, said revolving table is provided on the bottom part with the revolving shaft as a vertical axis attitude, said rotating table is provided on the upper surface of said revolving table to have circumferentially equal intervals on a concentric circle with the revolving shaft as center, and said coolant vessel is provided on the rotating shaft center part.

10. The deposition system according to claim 1, wherein a plurality of works is arranged on the circumference of the concentric circle, and the cooling device is arranged in the center part of the concentric circle.

11. A method for performing a film deposition on a work by use of a film deposition system comprising a vacuum chamber, and an evaporation source for forming the film on the work and a cooling device for cooling the work, which are provided within said vacuum chamber, characterized in that the film is formed on the outside surface of the work while insertably and drawably inserting said cooling device into the work to cool the work from the inside of the work.

12. The method according to claim 11, wherein the work is rotated

and revolved in the state where said cooling device is inserted into the work.